PHYCOLOGICAL OBSERVATIONS—IV. TWO NOTEWORTHY SPECIES OF CAULERPA (CHLOROPHYTA) FROM THE PHILIPPINES

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CITATION:

Cordero, Paciente A.. PHYCOLOGICAL OBSERVATIONS—IV. TWO NOTEWORTHY SPECIES OF CAULERPA (CHLOROPHYTA) FROM THE PHILIPPINES. PUBLICATIONS OF THE SETO MARINE BIOLOGICAL LABORATORY 1976, 23(1-2): 83-87

ISSUE DATE:

1976-07-31

URL:

http://hdl.handle.net/2433/175922

PHYCOLOGICAL OBSERVATIONS — IV.

TWO NOTEWORTHY SPECIES OF *CAULERPA* (CHLOROPHYTA) FROM THE PHILIPPINES[1)]

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With Text-figures 1–2

Abstract

Two species of the genus *Caulerpa* (Caulerpaceae, CHLOROPHYTA) are added to the marine algal flora of the Philippines. The first, *Caulerpa* sp., collected from Mactan Island, Cebu Province (10°18′ N lat., 123°58′ E long.), has vertical branches which bear clavate ramuli in the lower half of the plant body but are naked and ending bluntly unevenly furcate in the upper half. The second, *C. peltata* var. *nummularia* Weber van Bosse, collected from Basco Batanes Province (20°18′N lat., 122°E long.), shows a peculiar branching pattern issuing a few daughter disks from the crenulate margin of successive disk-like ramuli.

Introduction

Caulerpa (Caulerpaceae, CHLOROPHYTA) is a genus comprising mainly tropical species, and rather large number of species has been attributed to its highly polymorphic characteristics.

In the Philippines about 23 species of *Caulerpa* have been reported already since *C. taxifolia* and *C. plumaris* were recorded first of all. Other species reported from the country are listed below together with the authors who reported them:

Species	Records
Caulerpa brachypus	Gilbert (1959); Domantay (1961); Taylor (1966).
C. clavifera	Dickie (1876); Howe (1932).
C. crassifolia	W. v. Bosse (1913); Gilbert (1941, 1946, 1959); Menez, (1961).
C. cupressoides	Gilbert (1941, 1959); Domantay (1961); Reyes (1970).
C. elongata	W. v. Bosse (1913).
C. fastigiata	Gilbert (1941, 1959).
C. freycinetii	W. v. Bosse (1913).
C. laete-virens	Piccone (1886); Heydrich (1894).

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C.	*lentillefera*	Gilbert (1941, 1959); Domantay (1961); Taylor (1966).
C.	*macrodisca*	Howe (1932).
C.	*mexicana*	Taylor (1966).
C.	*microphysa*	Taylor (1966).
C.	*parvifolia*	Gilbert (1941, 1959).
C.	*peltata*	Dickie (1876); W. v. Bosse (1913); Gilbert (1941, 1946); Taylor (1966); Reyes (1970).
C.	*plumaris*	Montagne (1844); Martens (1866); Dickie (1876).
C.	*racemosa*	W. v. Bosse (1913); Gilbert (1941, 1946, 1959); Velasquez (1952); Domantay (1961).
C.	*selago*	W. v. Bosse (1913); Gilbert (1946, 1959).
C.	*serrulata*	Gilbert (1941, 1946, 1959); Domantay (1961); Menez (1961).
C.	*sertularioides*	W. v. Bosse (1913); Gilbert (1941, 1959); Domantay (1961); Menez (1961); Taylor (1966); Reyes (1970).
C.	*taxifolia*	Montagne (1844); Martens (1866); Gilbert (1941, 1946, 1959).
C.	*urvillana*	W. v. Bosse (1913); Taylor (1966).
C.	*verticillata*	Gilbert (1959).
C.	*vesiculifera*	Taylor (1966).

Of these, *C. plumaris, C. clavifera, C. laete-virens,* and *C. microphysa* are now known as *C. sertularioides, C. racemosa* var. *clavifera, C. racemosa* var. *laete-virens,* and *C. racemosa* var. *clavifera* f. *microphysa,* respectively.

The present wreter has collected several specimens belonging to the genus *Caulerpa* during his fieldworks around the country in the past few years. And among his collections were found *Caulerpa* sp. and *C. peltata* var. *nummularia* W. v. Bosse. As these records are evidently new to the Philippine waters, the gross morphological features of the two forms are described below. The materials are kept in the Philippine National Herbarium (PNH), National Museum of the Philippines.

Descriptions of the Species

1. *Caulerpa peltata* Lamouroux var. *nummularia* W. v. Bosse. (Fig. 1)

1898: 376, pl XXXII, fig. 9; Ibid., 1913; 111; Yamada, 1934: 72, fig. 40; Dawson, 1957: 106.
Caulerpa nummularia (Harv.) Reinke, Svedelius, 1906: 132, fig. 135; Okamura, 1932: 61, pl CCLXXX, figs. 13 & 14.

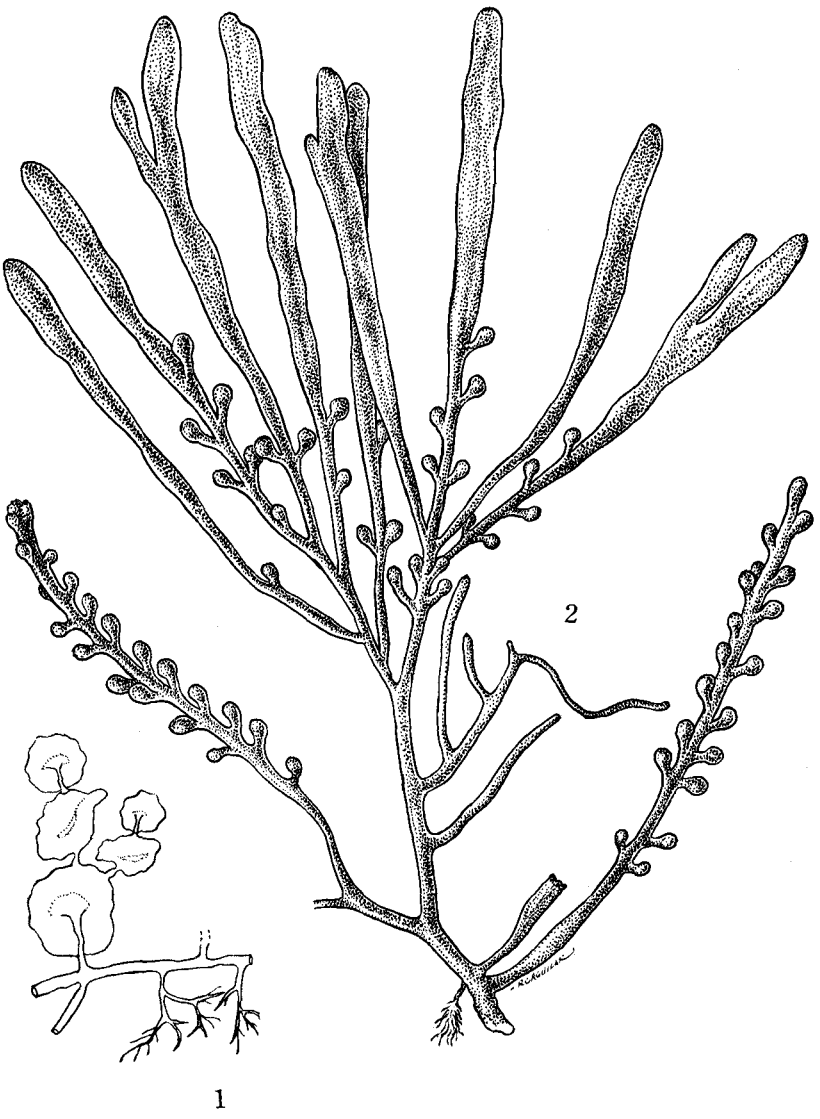
Plant is small, with branchlets plate- or disk-like and about 4 mm in diameter. Each peltate or 'mother' disk gives rise, from its crenulate margin, to one or two similarly shaped 'daughter' disks. The plant has a prostrate stolon, 0.5 to 0.75 mm in diameter and issuing fibrous rhizoidal structures at intervals of a few millimeters.

Descriptive materials: PNH 96936 also as GTV 6244, May 1, 1965, Chickerey, Basco, Batanes Province, collected by Velasquez, Cordero & Timbol.

General distribution: Ryukyu, Japan; Ceylon; South Pacific.

Except for some minor differences in dimensions, the specimens are in accord with those described by Okamura and Yamada, respectively, from Ryukyu and Amakusa, Japan.

This tiny species has been a subject of disagreements among phycologists. In Japan some authors believe that *C. peltata* var. *nummularia* should be separated as a species (Okamura, 1932, after the opinions of Reinke and Svedelius), while Yamada (1934) regards this alga as a variety of *C. peltata* and the present writer is following here this thought.



Figs. 1–2. 1: Habit of *Caulerpa peltata* var. *nummularia*. (×4)
2: Habit of *Caulerpa* sp. (×2)

As regards the origin of daughter discks, Okamura and Svedelius presented different explanations. Svedelius said that, "not in a single case have I been able to verify that a new stalk grows out from the crenule of the disc. Everytime I thought I had found such stalk in reality shot out from the stalk of another disc; but owing to the pressing it had had, this was not evident, and it seemed to emanate from the crenule itself." However, Okamura mentioned that, "stalk or stalks often arise from the border of non-crenulated margin of peltate disks," and concurred in this opinion with Yamada. After actually studying this feature on the specimens at hand, the present writer has to come the conclusion that the daughter disks originate indeed from the rim or margin of the parent disk.

2. *Caulerpa* sp. (Fig. 2)

as *Caulerpa racemosa* (Forssk.) J. Agardh, in Trono, 1973: 6; Yap, 1974 (unpublished thesis for Master of Arts).

Plant is based on slender, frequently forking stolon, 1.5 to 2 mm broad and giving rise to ascending branches and descending rhizoids at intervals of 2 (—4) cm. Ascending or vertical branches are up to about 60–70 mm tall and bear alternate to opposite, though more or less irregularly arranged, ramuli mostly in the basal half of the plant body. Each ramulus is provided with very short, slender to almost sessile pedicel and ending in an upward small clavate head, 1 to 2 mm broad. Also, vertical branches may be simple or branched alternately to oppositely. They are broader distally, may be unequally furcate and end bluntly.

Descriptive materials: PNH 114212, July 30, 1972, Calawisan, Mactan Island, Cebu Province, collected by Sis. M. Julia Yap.

General distribution: Philippines?

The most distinct feature of the present species is the presence of vertical branches which are bearing ramuli only in the basal half of the plant body and ending simple or unequally furcate. *Caulerpa racemosa* var. *macrophysa* Kuetzing, as interpreted by Taylor (1928), seems to be related with the present alga, but his descriptions as well as those by others of this and other 'similar' species are all impossible to be applied to the present form.

Therefore, at present the specimens at hand are better left unidentified and recorded plainly as an undescribed species of the genus *Caulerpa*.

Acknowledgements: The present writer acknowledges with his hearty thanks that the funds for this study came from the Government of the Philippines through the National Museum and the National Research Council of the Philippines (Grant GF V–4); Dir. Godofredo L. Alcasid, for continued encouragement; the Philippine National Herbarium staff for facilitating the loan of the materials described; and that Figure 2 in this paper was made by Mr. Ricardo C. Aguilar, scientific illustrator of the National Museum.

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